

What is claimed is:

1. A cooler for cooling both sides of one or more semiconductor devices which comprises:

5 a plurality of flat cooling tubes which have one or more cooling channels to allow a coolant to flow through, contact top and bottom surfaces of said semiconductor devices and are disposed at both sides of said semiconductor devices;

an inlet header which supplies said coolant to the opening ends of said cooling tubes;

10 an outlet header which collects said coolant from the other opening ends of said flat cooling tubes; and

a pressing mechanism for pressing a stack of said semiconductor devices and said flat cooling tubes,

15 wherein said header is deformed by the pressing force of said pressing mechanism, thereby absorbing a dimensional tolerance, in the stacking direction, between a total length of the pressed stack and total length of the header portion.

2. The cooler according to claim 1, wherein said flat cooling tubes closely contacts said semiconductor devices under said pressing force.

3. The cooler according to claim 1, wherein said headers consist of:

25 end portions of the cooling tubes which are connected to said cooling channels and have two head holes on both sides opening to the stacking direction; and

connecting members each of which is placed between two adjacent end portions and includes a compressible

portion which compresses in the stacking direction under the pressing force.

4. The cooler according to claim 3, wherein said connecting members are of bellows shape.

5        5. The cooler according to claim 1, wherein each of said inlet header and said outlet header comprises:

an opening portion in each flat cooling tube which is opened along the stacking direction and is connected in a liquid tight manner with an adjacent flat cooling tube;

10        a diaphragm which is formed around the opening portion and is deformable under said pressing force along the stacking direction,

wherein an end of the opening portion is connected in a liquid tight manner with another end of another opening portion of an adjacent flat cooling tube.

15        6. The cooler according to claim 5, wherein said flat cooling tube is made of two press-formed metal plates including a cup-shaped portion brazed face to face to form a tube.

20        7. The cooler according to claim 5, wherein said flat cooling tube is made of two press-formed metal plates of the same shape which are brazed face to face to form a tube.

25        8. The cooler according to claim 1, wherein said flat cooling tube comprises a spacer member inside said coolant channel for supporting the pressing force and suppressing deformation thereof along the stacking direction.

9. The cooler according to claim 1, wherein said

pressing mechanism comprises:  
a pair of holding plates contacting the outermost sides  
of said stack;  
through bolts which pass through said holding plates;  
5 and  
nuts fastened to said through bolts.